PLAIN VIEW

Updates for AWPM for Wheat

AWPM for Wheat is a pest management program for greenbugs and Russian Wheat aphids

Helping us understand you

Above: Growers from Pine Bluffs, WY participate in our focus groups. To the left: Sean Keenan conducts focus group discussions in South Hutchinson, KS.

In our first series of project updates we have been introducing you to members of our project team in each state and we have told you about some of the existing extension resources available in each state.

In this and future issues, we will be providing you with updates about elements of the "Area-Wide Pest Management" concept. We also hope to feature some of the growers from around the project area and their successes in managing wheat pests.

Growers who participated in focus group discussions shared some of their experiences with resistant wheat varieties and field scouting. Growers' observations provide some "food for thought" for wheat researchers and extension educators.

For example, many growers at southern Colorado focus groups stated that resistant varieties were an absolute necessity in their operations. Growers speculated that proximity to CRP fields was a factor in Russian wheat aphid pressure. One grower noted: "Right where I'm at I don't think I can plant anything but Halt." This sentiment was echoed in northern Colorado as well. One grower stated, "It's Russian wheat aphid resistant wheat for me," and another, "There's no way I would plant anything else."

Other Colorado producers have switched to non-resistant wheat varieties in recent years. Some preferred a wheat variety like Jagger with higher grazing quality. Some growers preferred a non-resistant variety for marketability factors like test weight or milling and baking factors desired by a particular merchant. A few growers stated that they typically had to spray their fields for mites and could get aphids in the process, so they felt like they didn't need to grow a resistant variety.

In general, however, Colorado producers were complementary of wheat

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Inside this issue:

Our project is a collaborative effort, teaming the USDA Agricultural Research Service with growers and universities in Texas, Oklahoma, Kansas, Colorado, Nebraska and Wyoming.

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We welcome suggestions and contributions for future updates.

Glance 'N Go Sampling

This is one of a three-part series.

A growers' guide to quick, easy checks of fields

What is Glance N' Go Sampling?

Glance N' Go is a sampling strategy that is designed to help the user accurately and rapidly sample wheat for greenbug infestations. It is based upon surveys taken in more than 100 wheat fields in Oklahoma over a two-year period. Glance N' Go sampling requires the field scout to simply count of the number of tillers that are infested with greenbugs instead of counting actual greenbugs. This strategy works well if you want to know if the presence of greenbugs is above or below a set treatment threshold. Studies show that this type of sampling can reduce scouting time by 25 percent or more, yet provide the same level of reliability that is obtained by directly counting the insects in the field.

$mart decisions
$mart money

How will Glance N' Go Benefit you?

The research that Glance N' Go is based upon shows that greenbug infestations can cause economic loss long before they cause visible injury to the wheat plant. Glance N' Go is designed to save the producer time and money. By checking the field with this system, you can quickly detect greenbug infestation and make control decisions based upon the cost for producing the crop. This system is a significant step forward for controlling greenbugs in winter wheat.

Benefits of Glance N' Go:

Easy — It's easy to determine whether to sprayfind pests before visible damage occurs.

Quick — Sampling takes little time to do. If you don't find bugs, you don't continue to sample.

Fun — Sample with your kids!
challenge yourself: can you find any bugs?

*For more information or to obtain lamenated sampling sheets, see page 5.

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researchers and the value of resistant varieties in reducing yield loss and the need for insecticides. "One of the things that I've noticed in the last few years," said a Colorado producer, "I don't think the Russian wheat aphid pressures are as great as when they first came in here." Another followed-up, "In recent years when we haven't had to spray, seems like there are a lot more predatory [insects], and so maybe we're not killing our predators either." A Texas producer made a similar observation. He felt like growers in his area had less need to use insecticides than in surrounding areas. "My theory is we're keeping a beneficial population that is helping us with biological control."

Spray decisions for wheat can be particularly difficult, since growers are reluctant to increase their input costs when wheat prices are low. Many of our focus group participants obtained advice from cooperative extension agents or co-op crop advisors. A few obtained advice from private crop consultants. Most still found treatment decisions for wheat difficult. One of our Texas focus group participants said: "If you've got a marginal crop, then you've got to make a decision on whether to spray—that is the hardest decision you make in growing crops."

Many growers at focus groups made tongue-in-cheek comments when we asked about field scouting. For example, one producer stated wryly: "If I drive by my field fast enough I can usually avoid finding crop damage." At other focus groups, growers tried to "one-up" other's comments about not knowing when to treat wheat fields for aphids:

"You wait until somebody hears airplanes flying around and then you go out and look at yours."

"I always wait and spray for insects after it is too late." (chuckling)

"Well, I always wait 'till I've lost more than what the spray costs!" (laughs from everyone)

Other producers told us that they regret not spending more time scouting for aphids, but they lack the time or are not certain how to go about it systematically:

"Anymore—with my crop rotation and doing all my own spraying—there are not too many weeks out of the year that I'm not doing something with my farming operation other than out scouting my fields like I need to."

OSU and USDA Agricultural Research Service researchers are aware growers struggle with treatment decisions for wheat and scouting techniques are time consuming and difficult to understand. Over the last several years, they have been developing a highly simplified, field-tested method of scouting for greenbugs in wheat, which Tom Royer at OSU has dubbed "*Glance N' Go.*"

In this update and future issues, we will tell you more about developments in Russian wheat aphid resistant varieties and scouting your wheat using *Glance N' Go*.

What's Happening Around

A new strain of Russian wheat aphid that is damaging previously resistant varieties of wheat has been identified in Colorado by Colorado State University Extension agents.

The new strain of aphid is attacking all wheat varieties this spring that were developed to be resistant to the original strain of the insect, especially in central and southern Colorado.

In particular, Prairie Red is vulnerable to infestation with the new aphid, or biotype B.

Prairie Red contains the same Russian wheat aphid-resistance gene as other varieties developed by Colorado State University: Ankor, Halt, Prowers 99, and Yumar. Kansas State University's resistant variety, Stanton, also is susceptible to the new biotype. All of these varieties continue to be resistant to the original aphid.

Colorado State University experts are investigating the aphid outbreak and working to determine sources of resistance that can be used in future varieties, predict next year's infestation risk, the origin of the biotype and the distribution of both the old and new biotypes.

"A new biotype of the Russian wheat aphid is not a completely unexpected development, but there was no way to prepare for it because we could not forecast how the aphid would develop and what sources of resistance would be effective," said Frank Peairs, cooperator in the AWPM program and CSU entomologist.

It is important to point out that other management tactics such as biological control and cultural practices should be equally effective against both biotypes.

Peairs said resistant varieties are grown on roughly 25 percent of Colorado acres. On acres with consistent RWA problems, the percentage climbs to 50 percent.

Points of Interest

CSU Department of Entomology

The Department of Entomology home page gives a number of links to interesting sites. From this site, you can view movies and images of different insects.

The C.P. Gillette Museum of Anthropod Biodiversity gives information about one of the largest labs and insect collections in the country. "Popular Classics in Entomology" is a large compilation of books written about insects. These are some of the seminal works.

@ http://www.colostate.edu/Depts/Entomology/

CSU Soil and Crop Sciences

This website also offers information interesting to growers. Check out the pages on Drought information. This site offers updated information on the latest developments and a Question-and-Answer Page.

@ http://www.colostate.edu/Depts/SoilCrop/

CSU IPM

Under Outreach Initiatives, growers will find a vast amount of information. Colorado Pest Management Center offers a variety of resources to growers including Pest Alert, a newsletter about pests, as well as Veg Net and other resources.

@ http://www.colostate.edu/Depts/bspm/Outreach/Outreach.shtml

Colorado State Cooperative Extension

The cooperative extension program offers valuable information about crops and Agriculture and Business. It offers a number of publications.

@ http://www.ext.colostate.edu/

Information on Resistant Varieties

The following links offer information about resistant varieties and will help you remain current on issues.

http://www.colostate.edu/programs/lifesciences/TransgeninCrops/

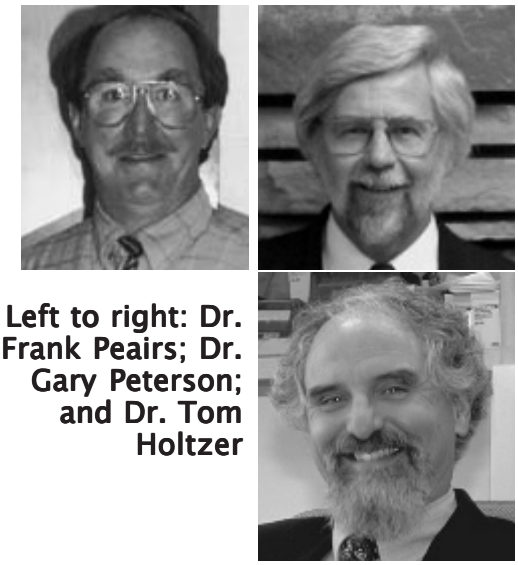
http://www.colostate.edu/Depts/SoilCrop/extension/CropVar/index.html

Feature team member, Fall 2003:

Colorado State University

Dr. Frank Peairs is a professor of Entomology and an extension specialist. His areas of expertise are in IPM research and extension. **Dr. Gary Peterson** is Department Head and professor of Soil and Crop Sciences. His expertise is in agronomy and soil science. **Dr. Tom Holtzer** is a professor and department head of bioagricultural sciences and pest management. His areas of expertise lie in IPM modeling and computer applications for technology transfer.

On the AWPM project, **Peairs** is the site coordinator for Colorado. **Peterson** will perform agronomic evaluations of cropping systems. **Holtzer** will organize education, technology transfer and evaluation.



Left to right: Dr. Frank Peairs; Dr. Gary Peterson; and Dr. Tom Holtzer

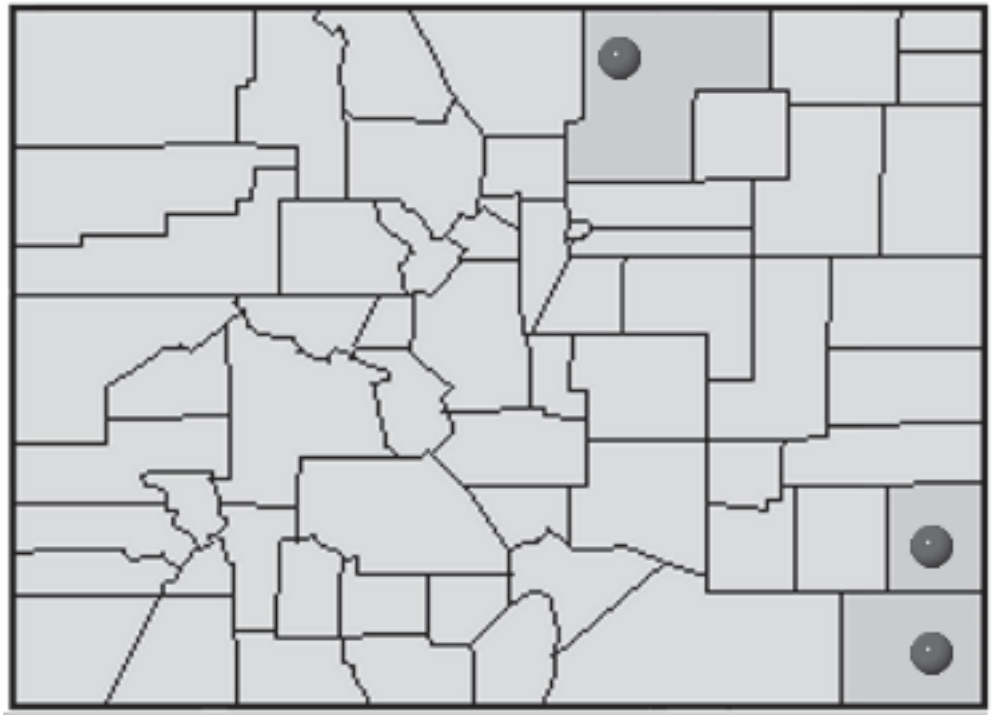
AWPM for Wheat relies on extension agents for help in what we do. The following extension agents helped with our focus groups and supported our program.

CSU Cooperative Extension:
Jerry Alldredge, Weld County Agent, Greeley
D. Bruce Bosley, Cropping Systems Extension Agent, Logan, Morgan, and Sedgwick Counties
Dennis Kaan, Agriculture and Business Management Specialist, Akron
Tim Macklin, Cropping Systems Agent, Southeast Colorado
John Ming, Baca County Agent, Springfield

Colorado State University Cooperative Extension

CSU Bioagricultural Sciences and Pest Management:
Thia Walker, Research Associate
David Poss, Research Associate
Laurie Kerzicnick, MS Candidate
Hayley Miller, MS Candidate

Northeastern Colorado



Northeastern Colorado Counties include Weld, Logan, Morgan, Washington, and Adams. Both demonstration sites for this part of the state are in Weld County.

Our demonstration site counties are marked.

Southern Colorado

Southern Colorado Counties include Baca and Prowers County. We have four demonstration sites in this part of the state, two in each county.

A little bit about.....

Colorado....

Most wheat in Colorado is dryland with fewer center pivot and furrow irrigation systems. Among some acceptable crop rotations are wheat-corn-fallow and wheat-sorghum-fallow. Sunflowers may be added to the rotation. But the dominant rotation is wheat-fallow. It is recommended to plant winter wheat following fallow.

Planting later helps avoid pest infestations. Planting varieties resistent to Russian wheat aphid and other pests will reduce the use of pesticides. In addition to Russian wheat aphids, Colorado growers must also watch for Corn Leaf aphids, English grain Aphids, grasshoppers and Army Cutworms. Insects are not the only pests that face Colorado growers. Diseases, such as the barley yellow dwarf virus, as well as weeds, such as jointed goatgrass and annual rye, are also problems.

According to information available from the Colorado Department of Agriculture, Colorado had 32.6 million acres of land in farms and ranches in 1997, 49% of the state's total land area of 66.6 million acres. About 36% was federally owned. Of that land, a large percentage was leased for agricultural production. Of the total land area in Colorado, cropland and irrigated land comprises 16% (10.7 million acres) and 5% (3.4 million acres), respectively. About 3.4 million acres of Colorado's irrigated agricultural land generates nearly $1 billion in revenue. Currently, roughly 20% of this land depends on finite water resources like the Ogallala Aquifer in eastern Colorado.

Glance 'N Go

Sample your field in 5 easy steps

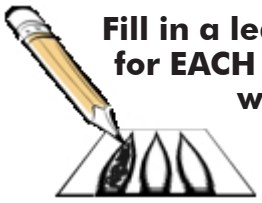
1. http://entoplp.okstate.edu

To begin sampling, go to OSU's Entomology website, click on agriculutral models and then cereal aphid pest management. Use the economic threshold calculator to select the appropriate sampling sheet for your field.

2. **To sample your field, plan to walk in a "zig zag" or "w" pattern. Walk 15 steps or about 30 feet between stops.**

3. **At each stop CAREFULLY pull and examine three tillers for the presence of greenbugs..**

4. **Fill in a leaf shape on the form for EACH TILLER that is infested with one or more greenbugs.**



5. **After six stops, add the number of filled-in leaf shapes and follow the directions on the sampling sheet.**

For more information, please contact Dr. Tom Royer at 405-744-9406.

Coming Soon:

This Winter: Glance N' Go and Pests

This Spring: Glance N' Go decision support tool

Areawide Pest Management for Wheat
Management of greenbug and Russian Wheat Aphid
USDA ARS
Agricultural Research Service
1301 N. Western Road
Stillwater, OK 74075
www. pswcrl.ars.usda.gov/awpm.htm

In the Winter 2004 update: **Feature team, Nebraska; Resistant Varieties and the new aphid; cost-of-production interviews with producers**